CLAIMS

What is claimed is:

1. A journal bearing system comprising:

a bushing; and

a journal pin within the bushing,

wherein at least one of the bushing and journal pin has an engagement surface with an engagement length comprising a substrate material and a solid lubricant, a concentration of the solid lubricant varying along the engagement length.

2. The system of claim 1 wherein:

the concentration is higher near ends of the engagement length than in an intermediate portion.

3. The system of claim 1 wherein:

the concentration varies by at least 50% of a maximum value along said engagement length.

4. The system of claim 1 wherein:

the base material comprises a coating applied to a substrate.

5. The system of claim 1 wherein:

the substrate comprises a copper-based material; and

the solid lubricant comprises a metal.

6. The system of claim 5 wherein:

the solid lubricant metal comprises lead.

7. The system of claim 6 wherein the concentration is:

greater than 30% at first and second locations near first and second ends of the engagement length; and

10-30% in an third location, between the first and second locations.

8. The system of claim 6 wherein the concentration is:

greater than 35% at first and second locations within first and second terminal 20% of the engagement length; and

10-30% over a majority of a central 50% of the length.

9. The system of claim 1 supporting a gear in a turbofan transmission.

10. A hydrodynamic bearing apparatus comprising:

a bushing;

a journal pin; and

means for providing extended operation after a lubricant loss.

11. The apparatus of claim 10 wherein:

the means comprise a longitudinally-varying lead concentration within a copper matrix.

12. A method for preparing a lining for a hydrodynamic bearing comprising:

applying a solid lubricant along the lining, the solid lubricant being applied with concentration that varies along a length of the lining.

13. The method of claim 12 wherein:

the applying of the solid lubricant comprises sputtering.

14. The method of claim 12 wherein:

the applying of the solid lubricant is simultaneous with the application of a base material.